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Predictors of progressive chronic kidney disease in liver transplant recipients: Analyses of a 10-year follow-up cohort

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Objectives: The prevalence of chronic kidney disease (CKD) after liver transplantation (LT) has been increasing because of improved survival of LT patients. Perioperative risk factors of renal dysfunction after LT are potentially modifiable.We investigated the risk factors associated with CKD progression for 10 years after LT.

Methods: This single center retrospective cohort study included 292 patients who underwent LT at Samsung Medical Center between January 2000 and December 2008. Renal function was measured by the estimated glomerular filtration rate (eGFR) using the Modification of Diet in Renal Disease formula. The area under the curve of serial eGFR (AUC_{eGFR}) was calculated for each patient. Linear regression analyses was performed to examine the relationships between the variables and AUC_{eGFR}.

Results: Risk factors were analyzed depending on the time points: preoperative, intraoperative, and postoperative variables. Among several risk factors identified by univariable analyses, subsequent multivariate analyses identified age ($P < 0.001$), preexisting diabetes mellitus ($P = 0.015$), preoperative proteinuria ($P < 0.001$), preoperative acute kidney injury (AKI) ($P = 0.002$), postoperative mean vasopressor score ($P = 0.018$), and postoperative AKI within 3 days after LT ($P = 0.030$) as significant prognostic factors for CKD progression.

Conclusions: Our study suggests that aggressive meticulous renoprotective management may be required in elderly LT patients with diabetes mellitus or preexisting proteinuria. Among the identified risk factors, postoperative AKI and vasopressor use may be modifiable by aggressive renoprotective management for preventing post-LT CKD progression.